UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/325,893	06/04/1999	MICHAEL I. NEIDICH	ZRAN.014US0	3423

36257 7590 02/02/2004

PARSONS HSUE & DE RUNTZ LLP
655 MONTGOMERY STREET
SUITE 1800
SAN FRANCISCO, CA 94111

EXAMINER	
PENDLETON, BRIAN T	

ART UNIT	PAPER NUMBER
2644	18

DATE MAILED: 02/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/325,893	NEIDICH ET AL.	
	Examiner	Art Unit	
	Brian T. Pendleton	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,3,11 and 47-67* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,3,11 and 47-67* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 2, 3, 11 and 47-67 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 50 and 65 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claim states that audio signals are modified according to the relative compliance of the enclosure. There is no disclosure of how to modify signals according to the compliance of **one** enclosure. Furthermore, the term "relative" implies two or more items.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11 and 53 are rejected under 35 U.S.C. 102(b) as being anticipated by Knibbeler. Knibbeler teaches an apparatus comprising speaker assemblies 8 and 9 each having left and right transducers, signal processors 3 and 4, and a plurality of input signals 1, 1' (column 4 lines 62-65). The apparatus uses equalizer units 3 and 4 to adjust the amplification and frequency response of the audio input signals according to a control signal. Knibbeler discloses that the audio input signals are derived from fixed input parameters determined by speaker relation characteristics because the spatial relationship of the speakers in the automobile determine how the microphones 11 and 12 pick up the audio signals and how the control unit 13 adjusts the equalizers. Claim 11 is met. Per claim 53, the fixed input parameter is distance between the speaker.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 3, 49, 51-52, 60, 61, 64, 66 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olson in view of Plunkett. Olson discloses a sound reproduction system comprising enclosure 55, the enclosure 55 having left speakers 56 and right speakers 57 receiving a plurality of audio inputs and audio control circuit 78 for controlling balance, volume control, equalization, etc. Olson does not disclose providing one or more parameters derived from the physical relational characteristics of the

speakers and modifying the audio input signals according to the parameters. One of ordinary skill in the art would have realized that the system of Olson was not adaptive. At the time of invention it was advantageously known to make stereophonic systems adaptive to different listening positions, which is equivalent to making the system adaptive to the physical relationship of the speakers. As a listener moves from one location to another, the physical relationship between the speakers changes as their respective distances to the listener changes. Plunkett taught a sound system which used a remote control 34 to automatically optimize the sound quality at a listening position. Test signals are picked up by a microphone 36 in the remote control 34 at listening position 10 and various parameters in each stereo channel are optimized using units 24L and 24R based on the received signal from the IR beam generated by the remote control 34. The parameters adjusted are loudness, equalization, time delay and balance. It would have been obvious to one of ordinary skill in the art at the time of invention to include the teachings of Plunkett and incorporate an automatic adjustment feature in the apparatus of Olson. Such a combination would have produced a system whereby the audio control circuit 78 would be provided with a parameter derived from the physical relationship of the speakers (listener position) and the audio inputs adjusted accordingly. As stated above, automation was a beneficial feature. Claims 3 and 60 are met. As to claims 2 and 61, different listener positions provide different distances between the two speakers. Regarding claims 49 and 64, Examiner takes Official Notice that different speakers exhibit different compliances. At the time of invention, it was suggested to modify a plurality of audio inputs based on the

relationship between speakers. Since speakers have different compliances it was obvious to modify the audio inputs of Olson using the parameter of speaker compliance. Per claims 51, 52, 66 and 67, Plunkett suggested changing equalization and delay parameters in the audio channels. Equalization is based on frequency response and delay is based on phase response.

Claims 47 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olson in view of Plunkett as applied to claim 3 above, and further in view of Philp et al. The combination of Olson and Plunkett teach a sound system comprising two or speakers in the same enclosure, a plurality of audio inputs coupled to the speakers, a remote controller for providing parameters derived from the physical relationship of the speakers and circuits for modifying the audio input signals. The combination does not disclose that the physical relationship used to modify audio signals is the azimuthal alignment of the speakers. However, Philp et al teach an audio signal adjustment system using controller 15 which sends a control signal to unit 12 to adjust the time delays in the audio channels based on, among others, the azimuthal angle of the listener. Thus, it was well known to adjust audio signals in stereophonic applications based on the azimuthal relationship of a pair of speakers, which is derived from the azimuthal angle of the listener. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the teachings of Philp et al in the combination of Olson and Plunkett.

Claims 48 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olson in view of Plunkett as applied to claim 3 above, and further in view of

Palmer. The combination of Olson and Plunkett teach a sound system comprising two or speakers in the same enclosure, a plurality of audio inputs coupled to the speakers, a remote controller for providing parameters derived from the physical relationship of the speakers and circuits for modifying the audio input signals. The combination does not disclose that the physical relationship used to modify audio signals is the size of the speakers. It was common knowledge at the time of invention that different sized speakers produced different frequency responses. A larger speaker was able to faithfully reproduce lower frequencies than smaller speakers. Therefore it was known to direct different frequency bands to different sized speakers, i.e. crossover circuits. Palmer teaches such an automatic crossover method, which involves providing a parameter representing the inclusion of a larger sized speaker (subwoofer) being connected to jack 52 and adjusting the audio of the speaker pair 28, 30 accordingly using filters 34 and 38. Hence it was established by Palmer to modify audio inputs according to the size relationship among speakers. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the teachings of Palmer in the combination of Olson and Plunkett.

Claims 56-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knibbeler in view of Plunkett. Knibbeler teaches an apparatus comprising speaker assemblies 8 and 9 each having left and right transducers, signal processors 3 and 4, and a plurality of audio input signals 1, 1' whereby the audio input signals are derived from fixed input parameters determined by speaker relation characteristics. Knibbeler does not teach that the audio input signals are based on relative phase response and

phase frequency. However, it was well known to derive input audio signals based on the relative phases of speaker assemblies, as evidenced by Plunkett. Plunkett teaches a method which uses a remote control 34 to automatically optimize the sound quality at a listening position. Test signals are picked up by a microphone 36 in the remote control 34 at listening position 10 and various parameters, such as frequency and phase response, in each stereo channel are optimized using units 24L and 24R based on the received signal from the IR beam generated by the remote control 34. Since it was well known to use relative phase response of speakers to arrive at audio signals it would have been obvious to one of ordinary skill in the art at the time of invention to do so, per the teachings of Plunkett, in the invention of Knibbeler. Claims 58 and 59 are met. Regarding claims 56 and 57, Examiner takes Official Notice that different speakers and different speaker assemblies exhibit different compliances. At the time of invention, it was suggested to modify a plurality of audio inputs based on the relationship between speakers. Since speakers and their assemblies have different compliances it was obvious to derive the audio inputs of Knibbeler using the parameter of compliance.

Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Knibbeler in view of Philp et al. Knibbeler teach a sound system comprising two speaker assemblies, a plurality of audio inputs coupled to the speakers, the audio inputs being derived from the fixed input parameters determined by the physical relationship of the speaker assemblies. Knibbeler does not disclose that the physical relationship used to derive audio signals is the azimuthal alignment of the speakers. However, Philp et al teach an audio signal adjustment system using controller 15 which sends a control

signal to unit 12 to adjust the time delays in the audio channels based on, among others, the azimuthal angle of the listener. Thus, it was well known to adjust audio signals in stereophonic applications based on the azimuthal relationship of a pair of speakers, which is derived from the azimuthal angle of the listener. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the teachings of Philp et al in Knibbeler.

Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Knibbeler in view of Palmer. Knibbeler teach a sound system comprising two speaker assemblies, a plurality of audio inputs coupled to the speakers, the audio inputs being derived from the fixed input parameters determined by the physical relationship of the speaker assemblies. Knibbeler does not disclose that the physical relationship used to modify audio signals is the size of the speakers. It was common knowledge at the time of invention that different sized speakers produced different frequency responses. A larger speaker was able to faithfully reproduce lower frequencies than smaller speakers. Therefore it was known to direct different frequency bands to different sized speakers, i.e. crossover circuits. Palmer teaches such an automatic crossover method, which involves providing a parameter representing the inclusion of a larger sized speaker (subwoofer) being connected to jack 52 and adjusting the audio of the speaker pair 28, 30 accordingly using filters 34 and 38. Hence it was established by Palmer to modify audio inputs according to the size relationship among speakers. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the teachings of Palmer in Knibbeler.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (703) 305-9509. The examiner can normally be reached on M-F 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Brian Tyrone Pendleton
January 24, 2004

F. W. ISEN
SPE, ART UNIT 2644